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HIGH BLOOD PRESSURE IS SNEAKY STUFF

By Terry Brenner
University Relations

Fifteen percent to 20 percent of Americans have high blood pressure, and half of them don't know it. High blood pressure is sneaky. In fact, the unwitting victim may notice no symptoms at all.

That means maintaining a healthy lifestyle and having regular blood pressure checks is crucial, according to Vincent Colucci, an assistant professor of pharmacy practice at The University of Montana. A person's blood pressure can vary greatly under different circumstances, so regularity of checkups is important for a consistent picture, he says.

What people find out when they have their blood pressure checked is the force generated by the heart as it pumps blood through the arterial system and the resistance by the arterial vessels. It's expressed mathematically as a fraction like 120/80. The top number denotes the force of the heart. The bottom number is the arterial resistance.

To understand the concept of blood pressure, Colucci says to think of the circulatory system as an irrigation system.

"The heart is the pump, and the vessels are the irrigation pipes," he says. "In an irrigation system, the idea is to get water out to the crops that need it for life. In the body, the system has to get blood out to all parts of the body to provide the necessary oxygen and

-more-

nutrients the blood carries. We need enough pressure to do the job."

But it's possible to get too much pressure in the system, he says, if the pump or heart is working too hard, if the pipes or blood vessels are too small or if the system has too much fluid, he says. Too much pressure can cause damage.

Blood pressure is measured with an inflatable cuff placed around the upper arm and pumped up with enough pressure to collapse the artery. This is the pressure needed to fill the blood vessel. Called the systolic pressure, it is the top number in the numerical expression of blood pressure and is noted when the first heart beat is heard through a stethoscope placed over the artery at the bend of the elbow. As the cuff is gradually deflated, the beat grows fainter. The point at which it completely fades marks the diastolic pressure, which is written as the bottom number.

A blood pressure of 120/80 is considered normal, Colucci says. Optimal pressure is often an individual goal set by one's physician. Blood pressure of 140/90 or more is defined as high blood pressure, technically called hypertension. It can damage the body's organs, nervous system and, of course, circulatory system.

Medications can help keep blood pressure under control, but lifestyle factors play a vital role in keeping medications to a minimum, thereby cutting down on side effects and costs, Colucci says. Here are the lifestyle recommendations he offers.

■ Maintain an ideal body weight. For every pound of extra fat, the body has to pump an extra mile of blood, he says. It's like adding an acre to the irrigation system. Losing weight is the most effective nonmedicinal way to lower blood pressure.

■ Restrict salt intake. Sodium will increase the amount of fluid flowing through the

system. Increased volume means more pressure.

■ Stop smoking. Tobacco products contain vasoconstrictors, chemicals that reduce the size of the blood vessels. This increases pressure, and increased pressure means increased risk of damage. If a vessel ruptures, the tissues it nourishes die.

■ Limit alcohol intake. Alcohol increases blood pressure. It also is a direct toxin to the heart muscle.

■ Exercise regularly. Aerobic exercise or daily physical activity improves cardiovascular fitness.

Those lifestyle measures form the first line of defense. If they prove inadequate and using a blood pressure medication becomes necessary, the first option is usually a diuretic, Colucci says.

"Diuretics work to increase the elimination of sodium and fluid," he says. "This gets rid of excess fluid that's causing too much pressure." The main worry with diuretics, he says, is dehydration, which can result in blood pressure that's too low. Diuretics also can flush out important electrolytes like potassium and magnesium, he says.

The other main categories of blood pressure medications are angiotensin converting enzyme (ACE) inhibitors, angiotensin receptor blockers (ARBs), calcium channel blockers, beta blockers and vasodilators. Each type acts differently to lower blood pressure, Colucci says.

■ ACE inhibitors and ARBs inhibit blood pressure-raising hormones that the body sends out to hold onto fluid and restrict blood vessels.

"The heart is a like a horse pulling a wagon," he says. "When it slows down, do you

beat the horse or unload the wagon? Unloading the wagon is the theory behind these drugs. They take the workload off the heart."

■ Calcium channel blockers reduce blood vessel constriction by interfering with the effects of calcium in the blood vessel wall. Calcium helps blood vessels contract. By reducing blood vessel constriction, these drugs can decrease pressure. They do not affect blood calcium levels.

■ Beta blockers slow the heart rate down enough to decrease blood pressure. However, they also constrict the bronchial passages so they aren't a good option for asthmatics.

■ Vasodilators lower blood pressure by dilating arteries to decrease overall pressure in the circulatory system.

Anyone about to take one of these drugs should take a good look first.

"When a physician prescribes a medication, ask him or a pharmacist about it before you take it," Colucci says. "Ask about side effects, drug interactions with prescription or nonprescription drugs, foods to avoid and other special instructions."

People have more difficulty staying with blood pressure medications than with any other medication, UM Wellness director Gordon Opel says. Finding the most tolerable one is critical. An informed patient has the best chance of that.

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